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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,059

01/30/2008

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Q90241

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EXAMINER

YANG, JAY

ART UNIT

PAPER NUMBER

1786

NOTIFICATION DATE

DELIVERY MODE

01/31/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
PPROCESSING@SUGHRUE.COM  
USPTO@SUGHRUE.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,059	<b>Applicant(s)</b> MIKAMI ET AL.	
	<b>Examiner</b> J. L. YANG	<b>Art Unit</b> 1786	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/05/10; 09/21/05</u> .                                      | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections – 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

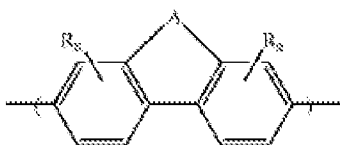
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 3-7, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marrocco, III et al. (US 2002/0028347 A1).

Marrocco, III et al. discloses an EL composition comprising a polymer matrix + metal complex for the light-emitting layer of an organic EL device (abstract) in which the metal complex = transition complex ([0029]), the latter of which serves as the emitter ([0022]). Marrocco, III et al. discloses the following polymer:

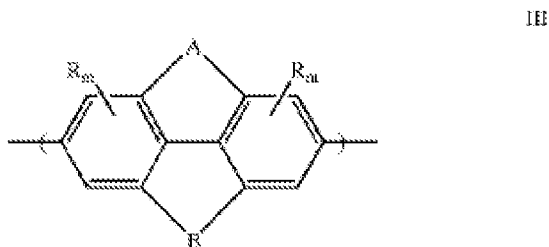


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(II, [0012]) where  $R = H$  ([0013]) and  $A = -NR_1-$  ([0013]) where  $R_1 =$  aryl group such that  $X =$  single bond,  $Ar_1 = Ar_2 =$  trivalent aryl group (phenyl) of Formula (1) as defined by the Applicant. Marrocco, III et al. discloses that the polymer matrix can be coordinated to the metal ([0028], [0034]) in order to enhance energy transfer. Marrocco, III et al. further discloses that such a composition can be used to form a mixed layer between two electrodes ([0056]) in which the luminescent material (polymer host + metal dopant) is combined with an electron-transporting material ([0058]). However, Marrocco, III et al. does not explicitly disclose that  $Ar_3 =$  aromatic group with the recited substituents. Nevertheless, it would have been obvious to one of ordinary skill in the art at the time of the invention to let  $R_1 =$  phenyl group substituted with aryloxy group or an aromatic group such a biphenyl (which is a phenyl substituted with a phenyl group). The motivation is provided by the fact that Marrocco, III et al. discloses that phenyl is a possible aromatic group ([0052], [0012]) in which biphenyl is merely a phenyl homolog, in addition to the fact that such substituted phenyl groups is specifically disclosed (I, [0012]-[0013]).

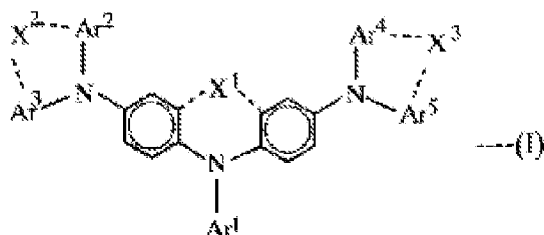
4. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marrocco, III et al. (US 2002/0028347 A1) in view of Idemitsu (JP 10226785 A).

Marrocco, III et al. discloses the composition/compound according to Claims 1 and 7. Marrocco, III et al. discloses the following polymer for the composition:



([0012]) where B = -NR<sub>1</sub>- and A = -O- ([0013]). However, it does not explicitly disclose the polymer in which the trivalent aromatic groups are only joined to A and B only (and not further to each other).

Idemitsu discloses the following compound for use in the light-emitting layer of an organic EL device (abstract):



(page 1) where X<sup>1</sup> = -O-. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the core of the polymer as disclosed by Marrocco, III et al. to the core (i.e., N(Ar<sup>1</sup>)-containing fused ring) of the compound as disclosed by Idemitsu. The motivation is provided by the fact that Marrocco, III et al. allows a wide variety of cores for the polymer matrix ([0012]), in addition to the fact that the only difference between the core of Marrocco, III et al. and that of Idemitsu is a single bond between the trivalent aromatic (phenyl groups). Further motivation is provided by the fact that both materials as disclosed by Marrocco, III et al. and that of Idemitsu is used

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as charge-transporting material in the light-emitting layer of an organic EL device, rendering the modification predictable with a reasonable expectation of success.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. L. YANG whose telephone number is (571)270-1137. The examiner can normally be reached on Monday to Thursday from 8:30 am to 6:00 pm Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/

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Supervisory Patent Examiner, Art Unit 1786

/J. Y./

Examiner, Art Unit 1786